

REMARKS:

The amendment filed on 13 November, 2004 introduced a new limitation into independent claims 36 and 44-51 pending in the subject patent application. The limitation is that the aromatic polyester have a crystallinity of lower than 15%. The examiner has constructively elected claim 36 and withdrawn claims 44-51.

The examiner granted an interview 25 May, 2005 during which the claimed invention versus the prior art was discussed. The examiner pointed out new claims and the need for a declaration clarifying the prior art relative to the invention. New claims have been added and the requested declaration is provided in this response.

New claims 52-63 are entered for consideration of as a result of the examiner's interview along with a request for continued examination. Claim 52 is similar to claim 38 with the additional limitation that low melting point resin be an aromatic polyester. Support for the limitation can be found on page 4, line 8 – noting terephthalic acid based polyesters.

Claim 53 adds the limitation that layers are adhered by hot lamination. Support for that limitation can be found at page 3, line 19-20

Claim 54 uses a polyester based glue. Support for that limitation can be found at page 6, line 21.

Claim 55 limits the aromatic polyester of the foamed sheet to copolyethylene terephthalate containing 2 to 20 mole percent derived from isophthalic acid or naphthalene-dicarboxylic acid. Support for that limitation can be found at page 6, lines 11-14.

Support for claim 56's limitation that the sheet density range from 10 to 500 kg/m³ can be found at page 3, line 21.

Support for claim 57 has the same elements as claim 52 except for the use of closed end language. The support for claim 57 is the same as the support for claim 52.

Claims 58 – 61 are same limitations to the article of claim 57 as claims 53 – 56 are to the article of claim 52. Therefore the support for claims 53 – 56 is the same support for claims 58-61 respectively.

Claim 63 limits the article to being entirely recyclable. Support for that limitation can be found at page 3, line 8.

Regarding the January 26, 2005 Office action as it pertains to claim 36.

The previous rejection of claim 36, under 35 U.S.C §103 as being obvious over the

teachings of Roulin et al (United States Patent 5,508,075) in view of the teachings of Harfmann (United States Patent 5,681,865) and Nankee et al (United States Patent 4,543,364) has been withdrawn.

The 26 January 2005 office action rejected the foamed sheet with creases of claim 36 as obvious over Roulin et al (United States Patent 5,508,075) in view of Kimura et al (U.S. Patent No. 5,972,445). The rejection maintains that Kimura et al teaches a polyester sheet with crystallinity less than 15% and that a density of less than 700 Kg/m³ is achievable through normal optimization. The rejection also maintains that one of ordinary skill in the art would combine Roulin with Kimura because of the crystallinity and recyclability of Kimura et al.

Roulin et al, in view of Kimura et al, cannot render claim 36 obvious because their combination is improper as they teach away from each other and the combination does not contain (explicitly, inherently, or through optimization) all the elements of claim 36, in particular the limitation that the density of the foamed sheet be less than 700 kg/m³.

First, the combination of the two references is improper because the references teach away from each other with respect to the embodiment of a foamed sheet. A foamed sheet of the instant invention and that described in Roulin has many tiny bubbles dispersed in it and is not transparent (Rollick Declaration at 8 and 11). In contrast, the sheet of Kimura et al must be transparent. (Column 2, line 48). In fact, the replacement of non-transparent crystallized polyester with transparent amorphous polyethylene naphthalate is Kimura et al's objective and is also claimed by Kimura et al. (Column 1, line 62; Column 4, lines 42 - 49; and claim 1, part 3). It is impossible to combine a transparent sheet with a non-transparent foamed sheet and thus one of ordinary skill would not and could not combine the foamed sheet of Roulin, with the non-foamed sheet of Kimura.

Recyclability is also not a motivation because the types of recyclability are different. The recyclability referred to in the invention and in Roulin et al, is recyclability from the environment. That is, recycling the container after it is used and disposed of by the consumer. The recyclability referred to in Kimura et al is recycling at the production line. (Column 2, line 49). These are two distinct forms of recycling, the kind referred to in the invention is post-consumer recycling and the kind referred to in Kimura is post-industrial or in plant recycling. One of ordinary skill in the art cannot be motivated by in plant recycling as a basis for claiming recyclability from the environment after the article's intended use.

The rejection also maintains that while the density of 700 kg/m³ is not disclosed in Kimura et al the density would be achieved when one varied the density of the sheet to attain the desired crystallinity. The rejection improperly substitutes the density of the sheet with the density of the polymer. While one indeed can vary the polymer density to achieve a desired crystallinity, one can never reduce the polymer density below the amorphous density which corresponds to 0% crystallinity. (Rollick Declaration at 9) In the case of both polyester and polyethylene naphthalate (the polymer of Kimura et al. Column 4, line 38), the polymers have a minimum density of 1335 and 1360 kg/m³ respectively. This minimum polymer density corresponds to 0% crystallinity and any increases in crystallinity can only be achieved by increasing the density, not decreasing it. (Rollick Declaration at 10). Therefore, one of ordinary skill in the art could never make a variation in polymer density/crystallinity that would be less than 700 kg/m³. (Rollick Declaration at 11). The only way for the sheet density to be less than 700 kg/m³ density is to foam it, which makes it non-transparent, and therefore no longer the transparent sheet of Kimura et al.

Since the combination of Roulin et al with Kimura is improper and the combination does not contain all the elements of claim 36, the combination cannot render claim 36 obvious. With no outstanding prior art, it is believed that claim 36 is allowable and the examiner is respectfully requested to allow the claim.

Respectfully submitted,



Agent for Applicant(s)

Edwin A. Sisson, Reg. No. 48,723
M & G Polymers Technology Center
6951 Ridge Road
Sharon Center, Ohio 44274-0590
Telephone: (330) 239-7413